

1989

## Bald Eagle Investigations

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PERFORMANCE REPORT

STATE: VIRGINIA PROJECT NO.: EW-2-1  
PROJECT TYPE: Research and/or survey STUDY NO.: I  
PROJECT TITLE: NONGAME AND ENDANGERED JOBS NOS.: A-D  
SPECIES INVESTIGATIONS  
STUDY TITLE: BALD EAGLE INVESTIGATIONS  
JOB TITLE: BALD EAGLE INVESTIGATIONS  
PERIOD COVERED: July 1, 1988 - June 30, 1989

JOB I-A  
OBJECTIVE: To make a winter inventory of bald eagle numbers including age composition of this population.

JOB I-B  
OBJECTIVE: To determine hatching and fledging success of eagles in Virginia.

JOB I-C  
OBJECTIVE: To identify ownership of nesting areas and concentration areas of bald eagles during the summer and winter season and to develop management agreements and protection strategies where possible for these areas. These areas will be monitored regularly as deemed necessary.

JOB I-D  
OBJECTIVE: To provide other states with young eagles for recovery and re-establishment efforts.

SUMMARY:

Aerial and ground surveys resulted in the location of 92 active bald eagle nests. A total of 88 young fledged. This resulted in a production of 0.96 fledglings per active nest and 1.69 fledglings per productive nest. Fifty seven percent of the active nests were productive.

Shoreline surveys were conducted regularly of two summering populations, one each on the James and Potomac Rivers.

An aerial mid-winter survey of eagles was conducted in January, resulting in the location of 336 birds. This population consisted of 178 adults (53%) and 158 immatures (47%).

Land ownership for all nest sites through 1988 was verified or reverified.

JOB I-A - To make a winter inventory of bald eagle numbers including age composition of this population.

WINTER SURVEYS

Project personnel conducted an aerial survey throughout Eastern Virginia in January to locate wintering eagles. All major tributaries were covered. Inland impoundments were covered by ground and boat by volunteers. For purposes of comparison, data for 1987, 1988, and 1989 are shown in Table I.

Table 1. Bald eagles observed during mid winter surveys, January, 1987 and 1988. and 1989.

| <u>Area</u>                      | # Adults    |             |             | # Immature  |             |             |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                  | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> |
| James-Chickahominy Rivers        | 24          | 39          | 47          | 20          | 46          | 72          |
| Rappahannock-Piankatank Rivers   | 42          | 55          | 54          | 31          | 43          | 51          |
| Potomac River                    | 39          | 33          | 57          | 40          | 16          | 20          |
| York, Pamunkey, Mattaponi Rivers | 14          | 16          | 6           | 2           | 4           | 5           |
| Eastern Shore-Lower Tidewater    | 4           | 4           | 8           | 1           | 2           | 6           |
| Inland Impoundments              | 2           | 3           | 6           | 1           | 1           | 4           |
| Totals                           | 125(57%)    | 150(57%)    | 178(53%)    | 95(43%)     | 112(43%)    | 158(47%)    |

The ratio of adult eagles to immature eagles remains remarkably constant from year to year. The total count of 336 eagles in 1989 was a 28% increase over 1988 and was the highest count since the inception of mid-winter censuses. The upper James River from the Hopewell Bridge to Curles Neck Farm remains as a winter concentration area. Other concentration areas include Mason Neck on the Potomac River and Fones Cliffs on the Rappahannock River. These latter two areas continue to be under pressure from development.

## SUMMERING CONCENTRATION

### Potomac River

The Division of Parks has conducted weekly shoreline surveys of eagles along the Caledon Natural Area shoreline since 1986. Data are not comparable to earlier shoreline surveys which covered a much broader area on both sides of the Potomac. It appears, however, that this area currently supports a smaller, summering eagle population than previously was the case.

### James River

The James River has become a major summering area for eagles in the state. A major eagle roost which supports about 150 birds at any one time has been acquired by the Nature Conservancy. The adjacent shoreline on both sides of the river is heavily used by eagles for perching and foraging. A standard 7 1/2 mile census route on both sides of the James River is conducted approximately once per week during June and July. The shoreline surveys are intended to establish a seasonal pattern of use. All data accumulated are plotted for each season in accordance with 1/2 mile shoreline intervals.

Data for 1985-1988 indicate that the shoreline at Maycocks Point and Wilcox Wharf are the most heavily used sections of the river for perching and foraging (see Fig. 1). Both of these areas are sites of proposed development. Census figures to date for 1989 are indicated in Table 2.

Table 2. Eagles seen on shoreline census, James River roost area, 1989.

| 1989 | <u>Week Number</u><br><u>Date</u> | 1<br>5/15 | 2<br>5/24 | 3<br>5/31 | 4<br>6/08 | 5<br>6/29 | 6<br>7/07 | 7<br>7/15 |
|------|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|      | Adult eagles<br>observed          | 35        | 53        | 28        | 29        | 32        | 25        | 39        |
|      | Imm. eagles<br>observed           | 25        | 42        | 41        | 34        | 45        | 28        | 36        |
|      | Totals                            | 60        | 95        | 69        | 63        | 77        | 53        | 75        |

There appeared to be a substantial movement of eagles into the river about the third week of May. Five immature birds with yellow patagial markers have been sighted. All of these birds were young of the year which had been marked in Florida.

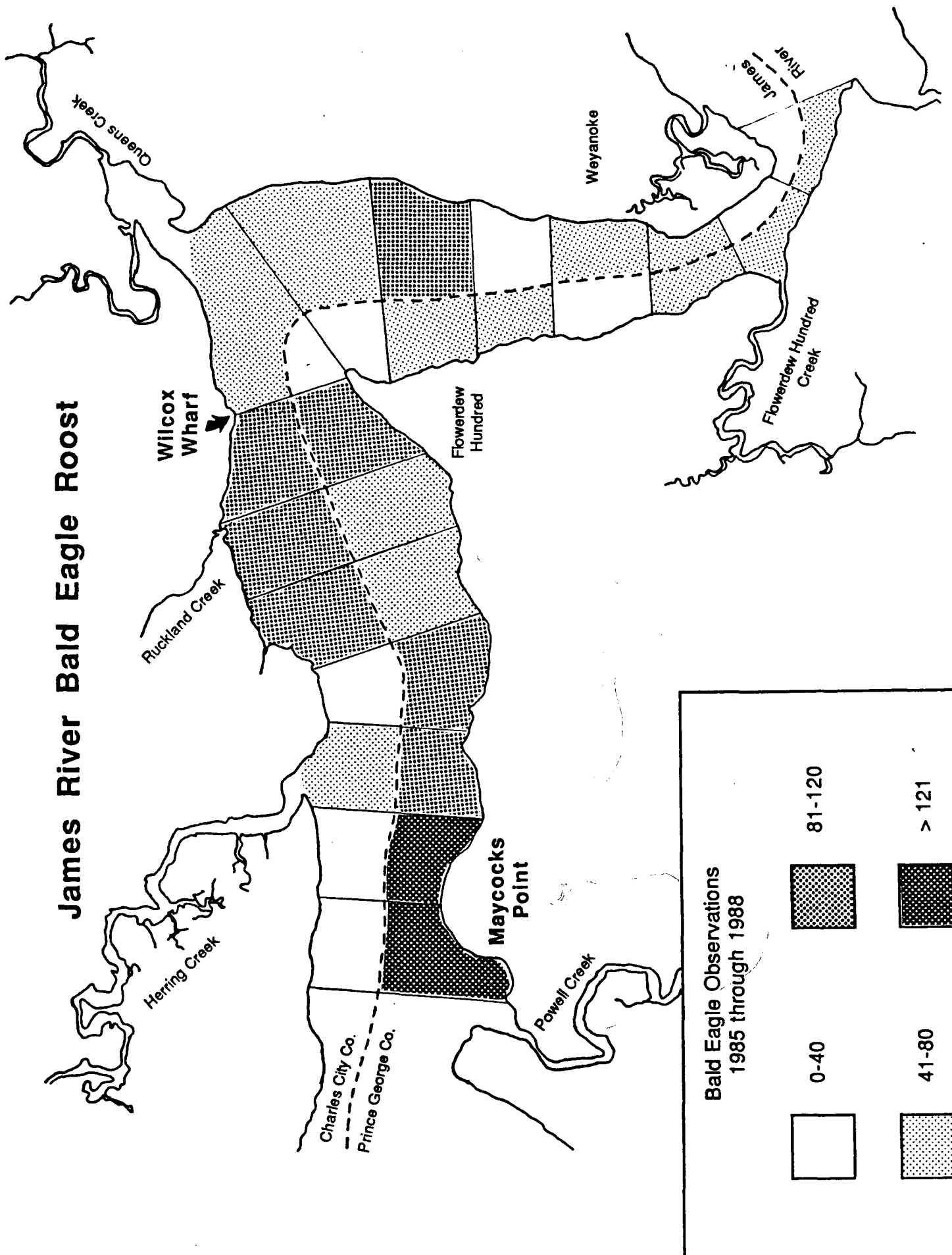


Figure 1

JOB I-B - To determine hatching and fledging success of bald eagles in Virginia.

Aerial surveys were conducted in February, March, and May to locate active nesting territories and to determine the number of young produced. May surveys were conducted after young were large enough to be observed with more certainty from the air. Surveys were conducted throughout Tidewater Virginia and Eastern Shore.

Aerial surveys resulted in the location of 92 active nests. All active nests were plotted on 7 1/2 minute topographic sheets. The location and fate of each active nest is shown in Table 3.

Table 3. Location and productivity of active bald eagle nests Virginia, 1989.

| James River, Chickahominy Rivers             |                    |                          |
|--|--------------------|--------------------------|
| <u>County</u>                                | <u>Nest Number</u> | <u>No. Young Fledged</u> |
| Charles City                                 | 85-01              | 0                        |
| Charles City                                 | 87-01              | 1                        |
| Henrico                                      | 88-01              | 2                        |
| Isle of Wight                                | 86-01              | 1                        |
| James City                                   | 87-01              | 2                        |
| James City                                   | 87-03              | 0                        |
| James City                                   | 88-02              | 0                        |
| James City                                   | 89-01              | 0                        |
| Newport News                                 | 87-01              | 0                        |
| Prince George                                | 61-01              | 2                        |
| Prince George                                | 86-01              | 1                        |
| Prince George                                | 87-01              | 1                        |
| Prince George                                | 87-02              | 0                        |
| Prince George                                | 88-01              | 1                        |
| Prince George                                | 89-01              | 0                        |
| Surry  | 87-02              | 0                        |
| York, Pamunkey, Mattaponi, Piankatank Rivers |                    |                          |
| Gloucester                                   | 88-01              | 0                        |
| Gloucester                                   | 88-02              | 2                        |
| James City                                   | 87-02              | 2                        |
| King and Queen                               | 87-01              | 2                        |
| King William                                 | 80-01              | 3                        |
| King William                                 | 85-01              | 2                        |
| King William                                 | 89-01              | 0                        |
| Middlesex                                    | 87-02              | 0                        |

|          |       |   |
|----------|-------|---|
| New Kent | 79-04 | 0 |
| New Kent | 83-01 | 0 |
| New Kent | 86-01 | 0 |
| York     | 86-01 | 1 |

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Rappahannock River

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|              |       |   |
|--------------|-------|---|
| Caroline     | 86-01 | 0 |
| Essex        | 78-01 | 1 |
| Essex        | 88-01 | 0 |
| Essex        | 88-02 | 2 |
| Essex        | 89-01 | 0 |
| King George  | 82-02 | 0 |
| King George  | 85-04 | 1 |
| Lancaster    | 86-01 | 0 |
| Lancaster    | 88-01 | 2 |
| Middlesex    | 77-01 | 0 |
| Middlesex    | 86-01 | 2 |
| Middlesex    | 87-01 | 2 |
| Middlesex    | 88-01 | 3 |
| Richmond     | 84-01 | 2 |
| Richmond     | 85-01 | 1 |
| Richmond     | 86-02 | 2 |
| Richmond     | 86-04 | 1 |
| Richmond     | 87-01 | 2 |
| Richmond     | 87-02 | 0 |
| Richmond     | 87-03 | 2 |
| Richmond     | 89-01 | 0 |
| Richmond     | 89-02 | 2 |
| Westmoreland | 78-05 | 0 |
| Westmoreland | 83-01 | 0 |
| Westmoreland | 84-01 | 2 |
| Westmoreland | 88-01 | 2 |

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Potomac River

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|                |       |   |
|----------------|-------|---|
| Fairfax        | 80-01 | 0 |
| Fairfax        | 89-01 | 2 |
| King George    | 84-02 | 2 |
| King George    | 87-02 | 1 |
| King George    | 87-05 | 0 |
| King George    | 87-06 | 2 |
| King George    | 87-07 | 2 |
| King George    | 89-01 | 0 |
| King George    | 89-02 | 0 |
| King George    | 89-03 | 0 |
| King George    | 89-04 | 2 |
| Northumberland | 86-01 | 0 |
| Northumberland | 88-01 | 2 |
| Northumberland | 89-01 | 2 |

|                |       |   |
|----------------|-------|---|
| Northumberland | 89-02 | 1 |
| Prince William | 87-01 | 1 |
| Stafford       | 82-01 | 1 |
| Stafford       | 85-01 | 0 |
| Stafford       | 87-01 | 0 |
| Stafford       | 87-02 | 1 |
| Westmoreland   | 79-04 | 3 |

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|              |       |   |
|--------------|-------|---|
| Westmoreland | 83-03 | 1 |
| Westmoreland | 83-04 | 1 |
| Westmoreland | 84-04 | 0 |
| Westmoreland | 86-01 | 3 |
| Westmoreland | 87-03 | 0 |
| Westmoreland | 88-03 | 1 |
| Westmoreland | 89-01 | 2 |
| Westmoreland | 89-02 | 1 |

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Eastern Shore and Inland Impoundments

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|             |       |   |
|-------------|-------|---|
| Accomac     | 80-01 | 0 |
| Accomac     | 87-01 | 1 |
| Accomac     | 88-01 | 0 |
| Accomac     | 89-01 | 0 |
| Bath        | 89-01 | 0 |
| Halifax     | 85-01 | 2 |
| Northampton | 87-01 | 0 |
| Northampton | 87-02 | 1 |
| Northampton | 89-01 | 1 |

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92 nests

88 young

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Of the active nests, 52 were productive and 40 were unproductive. Two young were known to be lost between the second and third aerial surveys, but all young were not followed through successful fledging.

Assuming that all young fledged successfully, average production was 0.96 young per active nest. This production represented a substantial reduction from the 1.46 average of 1988. It is believed that the high level of nest failure and this subsequent low productivity were attributable to the very inclement weather which occurred during incubation.

The number of fledglings per productive nests was 1.69, a decrease from 1988. Of the 57 successful pairs, four produced three young each, twenty six produced two young each, and twenty seven produced one young each.



Data on productivity of bald eagles in Virginia by river systems are indicated in Table 5. The severe decline in production on the James River was likely related to the two heavy snowstorms which occurred during incubation.

Table 5. Bald eagle productivity in Virginia for 1988 by River system or Area.

| River System<br>or Area                            | No. of<br>Active<br>Nests |      | Percent<br>Nests<br>Productive |      | No. of<br>Fledglings<br>Produced |      | Fledglings<br>per Productive<br>Nest |      | No. of<br>Fledglings<br>per Active<br>Nest |      |      |      |      |      |
|--|---------------------------|------|--------------------------------|------|----------------------------------|------|--------------------------------------|------|--|------|------|------|------|------|
|  | 1987                      | 1988 | 1987                           | 1988 | 1987                             | 1988 | 1987                                 | 1988 | 1987                                       | 1988 |      |      |      |      |
| York, Pamunkey<br>Mattaponi Pianka-<br>tank Rivers | 10                        | 12   | 80                             | 92   | 50                               | 14   | 21                                   | 12   | 1.75                                       | 1.91 | 2.00 | 1.40 | 1.75 | 1.00 |
| James, Chicka-<br>hominy Rivers                    | 16                        | 17   | 75                             | 88   | 50                               | 22   | 19                                   | 11   | 1.83                                       | 1.93 | 1.38 | 1.38 | 1.71 | 0.69 |
| Potomac River                                      | 21                        | 23   | 76                             | 74   | 65                               | 26   | 29                                   | 31   | 1.63                                       | 1.70 | 1.63 | 1.24 | 1.26 | 1.07 |
| Rappahannock<br>River                              | 21                        | 23   | 86                             | 79   | 62                               | 37   | 33                                   | 29   | 2.06                                       | 1.83 | 1.19 | 1.76 | 1.43 | 1.12 |
| Eastern Shore-<br>Reservoirs                       | 5                         | 6    | 100                            | 67   | 44                               | 8    | 6                                    | 5    | 1.60                                       | 1.50 | 1.25 | 1.60 | 1.00 | 0.56 |
| Totals   | 73                        | 81   | 84                             | 80   | 57                               | 107  | 118                                  | 88   | 1.75                                       | 1.81 | 1.69 | 1.47 | 1.46 | 0.96 |

Data on productivity trends for the period 1977-1989 are summarized in Table 4.

Table 4. Bald eagle productivity in Virginia for the period 1977-1988.

| Year | Total Active Nests | Total Prod. Nests | Total Unprod. Nests | Percent Nest Prod. | Total Young Fledged | Fledglings Productive Nest | Fledglings Active Nest |
|------|--------------------|-------------------|---------------------|--------------------|---------------------|----------------------------|------------------------|
| 1977 | 33                 | 13                | 20                  | 39                 | 18                  | 1.38                       | 0.54                   |
| 1978 | 37                 | 14                | 23                  | 38                 | 18                  | 1.29                       | 0.54                   |
| 1979 | 33                 | 15                | 18                  | 45                 | 20                  | 1.33                       | 0.61                   |
| 1980 | 35                 | 23                | 12                  | 66                 | 35                  | 1.52                       | 1.00                   |
| 1981 | 39                 | 27                | 12                  | 69                 | 40                  | 1.48                       | 1.02                   |
| 1982 | 45                 | 28                | 17                  | 62                 | 41                  | 1.52                       | 0.93                   |
| 1983 | 52                 | 31                | 21                  | 60                 | 51                  | 1.68                       | 0.98                   |
| 1984 | 60                 | 34                | 26                  | 57                 | 58                  | 1.68                       | 0.97                   |
| 1985 | 65                 | 47                | 18                  | 72                 | 84                  | 1.79                       | 1.29                   |
| 1986 | 66                 | 43                | 23                  | 65                 | 83                  | 1.93                       | 1.26                   |
| 1987 | 73                 | 61                | 12                  | 84                 | 107                 | 1.75                       | 1.47                   |
| 1988 | 81                 | 65                | 16                  | 80                 | 118                 | 1.82                       | 1.46                   |
| 1989 | 92                 | 52                | 40                  | 57                 | 88                  | 1.69                       | 0.96                   |

JOB I-C - To identify ownership of nesting and concentration areas of bald eagles during the summer and winter season and to develop management agreements and protection strategies where possible for these areas.

Property ownership for all bald eagle nests through 1988 were checked or rechecked during the year. Determination of ownership of property on which new 1989 nests are located is being initiated .

As part of the job on protection and management strategies, response was made to 73 inquiries regarding land use projects which might have an impact on an eagle nest or concentration area. Inquiries were from State and Federal agencies as well as private land owners. Serveral site visits were made regarding management problems and to validate reports of possible nests.

JOB I-D - To provide other states with young eagles for recovery and reestablishment efforts.

No young eagles were provided other states because of very low production.

TARGET DATE FOR COMPLETION: Continuing

STATUS OF PROGRESS: On Schedule

SIGNIFICANT DEVIATIONS IN PROGRESS: NONE

RECOMMENDATIONS: Continue Study

COST THIS SEGMENT: Federal \$30,975 State \$10,325 Total \$41,300

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